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REMARKS

Status of the Application:

Claims 3, 6-8, 11 and 12 are the claims of record of the application. Claims 3, 6-8, 11 and 12 have been rejected.

Interview on October 6, 2005

Applicant thanks the Examiner for the courtesy shown during the telephone interview held on October 6, 2005, between the Examiner and the undersigned. The invention and the prior art cited in the final office action were discussed. While no agreement was reached, the examiner agreed to accept and enter an after final response, and to consider the arguments presented therein. The Examiner agreed that as a result of the re-consideration, either a new search will be performed and a new rejection given, or a Notice of Allowance issued.

This Response After Final Should Be Entered

Applicant recognizes that the Examiner has discretion in considering a response after final rejection, and believes that the present response is sufficiently focused to be appropriate for entry. The remarks in this response directly address Examiner's concerns regarding the claims by commenting on Examiner's response to Applicant's Arguments. Thus, even if the Examiner is not persuaded to allow all claims in this application, this response places the application in better condition for appeal. These arguments are not believed to raise new issues.

It is believed that Examiner's response to Applicant's response and to the previous amendment set the stage for Applicant to respond directly to the Examiner's concerns. Entry of the response is respectfully requested.

Claim Rejections - 35 USC § 103

In the office action, claims 3, 6-8, 11 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,624,873 ("Callahan") in view of US Patent 6,507,658 ("Abel") and further in view of US Patent 6,026,169 ("Fujimori").

Applicant's invention clarified

The claimed aspects of the present invention deal with problems that occur when several (or a single) listeners are at unknown locations in a room, e.g., a movie house that has several speakers on one or both sides, to enhance the panning effect of a sound moving front to rear or rear to front, to add, in addition to the usual weighting of signals used for panning, time delays between the speakers, so that the listeners facing the front experience front to rear or rear to front movement of sound coming from the speakers that are to one side (or another) of the listeners. Otherwise, the position of the listener would overly affect

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the quality of the panning experience. For example, with panning by amplitude weighting, a movie viewer sitting next to one of the speakers on the side would miss the panning effect.

Thus an aspect of Applicant invention includes combining amplitude panning *together with* time delays to provide the illusion of sound moving along the side of the listener, e.g., front to rear or rear to front while the listener is facing the front.

Presently, it is not known to combining amplitude panning and variable time delays for a series of speakers on the side of a movie theater to produce rear -to-front or front-to-rear panning effects, even though this is a problem in present-day theaters.

The rejection

The Examiner has stated that a combination of *three* patents renders the claims 3, 6-8, 11 and 12 obvious. Applicant respectfully disagrees. To combine three patents places a burden on the examiner to show suggestion and motivation in the references or inherently for combining the references. The Examiner has failed in this burden of proof required to show obviousness.

One of the cited references is Callahan that discloses a surround sound processing apparatus for use with motion pictures. Applicant admits the existence of surround sound systems for theaters. The Examiner admits that Abel does not disclose the panning. Applicant asserts that the Examiner has failed to show that there is suggested the combination of such a theater system with the panning aspects of Applicant's invention.

Another of the cited references is Abel. Abel describes panning. Applicant admits that using amplitude weighting between two or more speakers to produce the illusion of a sound coming from between the speakers is known. **However, such panning is sensitive to the location of the listener.** Able admits this in talking about the sweet spot (105 in Abel). That amplitude weighting is position sensitive is one of the motivations for adding time delays. The Examiner has failed to show that Abel suggests such adding of time delays.

The third of the cited references is Fujimori, which deals with time delays when listening, and describes providing the illusion of sound coming from different directions. However, Fujimori deals only with headphones on a listener, or a single left and a single right loudspeaker. There is only one location for a single listener mentioned. Therefore, the problems faced by multiple listeners sitting at different locations attempting to each experience front to rear or rear to front motion is not applicable to Fujimori. Therefore, Fujimoro does not deal with the aspect of Applicant's invention to add delays to decrease position sensitivity.

Fujimori does deals with creating an illusion of different locations, but using single left and right speakers or headphones for a single user. As Fujimoro states in col. 58-63,

"It has been experimentally found by the present inventor that if one of left and right channel audio signals is inverted in phase when the sound image is localized

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at a forward position, the listener feels that the image is generated from a rearward position. The present invention is based upon this finding."

The time delays in Fujimori do not produce a front to rear panning effect in one or more speakers. Fujimori's time delays are related to compensating for the time delay a sound wave experiences before reaching one ear relative to the other. Phase reversal is used to provide the rear vs. forward localization.

The claimed aspects of the present invention are for a plurality of viewer/listeners viewing a screen, (or a single listener at an unknown location) and simultaneously listening to a set of loudspeakers, including at least three loudspeakers to a periphery, e.g., on the left side or on the right side of the listener. The loudspeakers are typically arranged perpendicular to the screen. FIG. 6 of the present invention shows such an arrangement.

Nowhere in Fujimori is there mentioned having a plurality of more than three left hand or right-hand speakers creating an illusion of front to back or back to front motion by simultaneously panning, i.e., weighting the signals to the speakers, and providing time delay of one speaker relative to another speaker on the same side. Fujimori's time delays, for example, would not work for a listener who is deaf in one ear, while Applicant's inventive aspect of dealing with front to rear or rear to front motion on one side could still be applied.

Thus, even if there was suggestion or motivation mentioned in the other references for adding what is disclosed in Fujimori—and the Examiner has failed to show that there is such motivation or suggestion—the combination would still not lead to the Applicant's invention.

None of the references suggest *combining* both traditional amplitude weighting to achieve panning with time delays between three or more speakers on the side of a viewer to produce the illusion of front-to-rear or rear-to-front motion.

The examiner has failed in the required burden of proof from a rejection under 35 USC 103.

Reversal of the rejection is hereby requested. The Application is believed allowable over the cited prior art.

For these reasons, and in view of the above amendment, this application is now considered to be in condition for allowance and such action is earnestly solicited.

Conclusion

The Applicant believe all of Examiner's rejections have been overcome with respect to all remaining claims (as amended), and that the remaining claims are allowable. Action to that end is respectfully requested.

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If the Examiner has any questions or comments that would advance the prosecution and allowance of this application, an email message to the undersigned at dov@inventek.com, or a telephone call to the undersigned at +1-510-547-3378 is requested.

Respectfully Submitted,

Oct. 6, 2005
Date


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